ΜΕΤΑΠΤΥΧΙΑΚΟ ΠΡΟΓΡΑΜΜΑ ΣΠΟΥΔΩΝ:

‘‘ΕΛΑΧΙΣΤΑ ΕΠΕΜΒΑΤΙΚΗ ΧΕΙΡΟΥΡΓΙΚΗ, ΡΟΜΠΟΤΙΚΗ ΧΕΙΡΟΥΡΓΙΚΗ ΚΑΙ ΤΗΛΕΧΕΙΡΟΥΡΓΙΚΗ’’

ΕΘΝΙΚΟ ΚΑΙ ΚΑΠΟΔΙΣΤΡΙΑΚΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΑΘΗΝΩΝ

ΙΑΤΡΙΚΗ ΣΧΟΛΗ

ΔΙΠΛΩΜΑΤΙΚΗ ΕΡΓΑΣΙΑ

ΘΕΜΑ:

"Retropubic Radical Prostatectomy versus Robotic Assisted Laparoscopic Radical Prostatectomy"

ΣΤΑΥΡΟΣ ΓΡΑΤΣΙΑΣ

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ΠΡΑΚΤΙΚΟ ΚΡΙΣΕΩΣ

ΤΗΣ ΣΥΝΕΔΡΙΑΣΗΣ ΤΗΣ ΤΡΙΜΕΛΟΥΣ ΕΞΕΤΑΣΤΙΚΗΣ ΕΠΙΤΡΟΠΗΣ

ΓΙΑ ΤΗΝ ΑΞΙΟΛΟΓΗΣΗ ΤΗΣ ΔΙΠΛΩΜΑΤΙΚΗΣ ΕΡΓΑΣΙΑΣ

Του Μεταπτυχιακού Φοιτητή ΣΤΑΥΡΟΥ ΓΡΑΤΣΙΑ

Εξεταστική Επιτροπή

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Η Τριμελής Εξεταστική Επιτροπή η οποία ορίσθηκε από την ΓΣΕΣ της Ιατρικής Σχολής του Παν. Αθηνών Συνεδρίαση της .....ης ..... 20.... για την αξιολόγηση και εξέταση του υποψηφίου κου ΣΤΑΥΡΟΥ ΓΡΑΤΣΙΑ, συνεδρίασε σήμερα .../.../....

Η Επιτροπή **διαπίστωσε** ότι η Διπλωματική Εργασία του Κου Σταύρου Γρατσία με τίτλο: **"Retropubic Radical Prostatectomy versus Robotic Assisted Laparoscopic Radical Prostatectomy",** είναι πρωτότυπη, επιστημονικά και τεχνικά άρτια και η βιβλιογραφική πληροφορία ολοκληρωμένη και εμπεριστατωμένη.

Η εξεταστική επιτροπή αφού έλαβε υπ' όψιν το περιεχόμενο της εργασίας και τη συμβολή της στην επιστήμη, με ψήφους ..... προτείνει την απονομή του Μεταπτυχιακού Διπλώματος Ειδίκευσης (Master's Degree), στον παραπάνω Μεταπτυχιακό Φοιτητή.

Στην ψηφοφορία για την βαθμολογία ο υποψήφιος έλαβε για τον βαθμό «ΑΡΙΣΤΑ» ψήφους ....., για τον βαθμό «ΛΙΑΝ ΚΑΛΩΣ» ψήφους ....., και για τον βαθμό «ΚΑΛΩΣ» ψήφους ..... Κατά συνέπεια, απονέμεται ο βαθμός «.....».

Τα Μέλη της Εξεταστικής Επιτροπής

- Χρήστος Π. Τσιγκρής, **Επιβλέπων** (Υπογραφή) _____
- Νικόλαος Ι. Νικητέας, (Υπογραφή) _____
- Ιωάννης Γκρινιάτσος, (Υπογραφή) _____

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Θερμές ευχαριστίες για την αμέριστη βοήθεια στη συγγραφή αυτής της διπλωματικής εργασίας και για τις πολύτιμες γνώσεις και συμβουλές του στον Επιβλέποντα Καθηγητή μου, στη Λαμπρινή και στους παντοτινούς μου φίλους Πάρη, Τζίνο, Λίλη, Μπιζού και Πίπη.

INTRODUCTION

Prostate cancer is the most frequently diagnosed cancer in men and the second-leading cause of cancer death after lung cancer. It accounts for 14% of the total new cancer cases and 5% of the cancer deaths in males over 50 years old in the U.S. The respective percentage for Europe is 7% and 1.5%. Overall 1% of the male population worldwide will die from prostate cancer. Incidence rates vary with the highest rates recorded primarily in the developed countries of North America, North Europe (Nordic countries), Oceania and the lowest in Asian and south European countries. Older age, race (black), and family history remain the only well-established risk factors.

The increase in prostate-specific antigen (PSA) screening, combined with a reduction in the threshold of indications for prostate biopsy and the greater number of samples taken, has contributed to an increase in the diagnosis of prostate cancer. This has led to earlier diagnosis, to downstaging of the disease, and to an increase in the number of patients presenting with clinically organ-confined disease. More than 90% of cases are diagnosed when the disease is organ confined. [1,2] Radical prostatectomy (RP) is the treatment with the best evidence for reducing cancer specific mortality among patients with clinically localized prostate cancer (cT1–cT2), life expectancy >10 yr and with no evidence of metastasis either clinically or radiographically. [3]

EVOLUTION FROM OPEN PROSTATECTOMY TO MINIMALLY INVASIVE (ROBOTIC) PROSTATECTOMY

Hugh Hampton in 1905 performed the first open prostatectomy for carcinoma through a perineal approach. The procedure was initially hampered due to high complication rates resulting from intraoperative bleeding and postoperative urinary incontinence. In 1947, Millin was the first to describe the retropubic approach. In early 1980s detailed anatomic studies by Walsh into the periprostatic anatomy - dorsal vein complex (DVC), the neurovascular bundles (NVBs) and the striated urethral sphincter took place. These anatomic studies led to the nerve sparing radical prostatectomy - preservation of neurovascular bundles supplying corpora cavernosa - which has maintained a cardinal role and is the gold standard for the surgical treatment of clinically localized prostate cancer for more than 2 decades. [4-5]

Since then, many steps have been done for the optimisation of the surgical technique, with the purpose of reducing complications and of improving functional results in terms of oncologic result, urinary continence and of erectile function. In an effort to further decrease the morbidity of open prostatectomy Schuessler and colleagues in 1997 performed the first successful laparoscopic radical prostatectomy (LRP). This procedure was standardized by Guillonneau and Vallancien in France [6-7]. The shift from open to laparoscopic surgery represented a completely new experience for surgeons, who were exposed to the surgical anatomy through a different perspective and were required to learn new operative procedures and to deal with new surgical tools. Surgeons faced a technically difficult procedure to learn - steep learning curve - associated with the many restrictions and limitations, like the reduction of the range of motion (the laparoscopic instrument has only 4 degrees of freedom motion), the two-dimensional (2D) vision, the impaired eye–hand coordination (misorientation between real and visible movements), the reduced haptic sense (ie, only minimal tactile feedback). LRP was a lengthy operation with no obvious advantage when compared with open radical prostatectomy, and as a result, was not immediately widely adopted in the field of urology. [8]

In early 2000s the introduction of the daVinci System (Intuitive Surgical) was a landmark moment for minimally invasive robotic surgery. By incorporating sophisticated wristed technology (7 degrees of freedom) at the terminal ends of the robotic instruments, a surgeon can operate, and suture with the facility of a human wrist. In addition, a 10X magnified, three-dimensional image (3D) is displayed as a result of a specialized stereo endoscopic lens and camera. These technologies provide the surgeon with an excellent view of the operative field and enable him to perform meticulous and precise movements, to identify better the tissue planes and to dissect more accurate.

The first-generation robotic platform, allows for the surgeon to control three robotic arms simultaneously, two arms for robotic instrumentation and a third arm that controls the stereo endoscope and camera. The newer da Vinci S system, made available in 2006, incorporates high-definition image capability with an additional fourth robotic arm for grasping and retraction. The latest-generation robot, the da Vinci Si HD, which was launched in 2009, offers two separate surgeon consoles allowing two surgeons to operate simultaneously, providing an opportunity for improved operative efficiency and teaching.

The first robot-assisted laparoscopic radical prostatectomy (RALP) was performed in 2000 by Binder and Kramer in Frankfurt, Germany. 9 Since then RALP has rapidly grown in popularity and it is now estimated that RALP is the dominant surgical approach for radical prostatectomy in the United States (>80%). There have been considerable and ongoing debates about the merits of RALP versus open surgical approach. This study aims to compare those two procedures, by analyzing their perioperative, functional, and oncological outcomes.

PERIOPERATIVE OUTCOMES

Operative time, estimated blood loss, transfusion rates, postoperative pain, in-hospital stay duration, days of bladder catheterization, are the main perioperative parameters that are going to be evaluated in order to compare the two surgical approaches of radical prostatectomy.

Operative Time

The duration of surgery is very important both from a medical point of view – the longer the operation the biggest the chances for complications to develop – and from the patient point of view because patients afraid long procedures even if they are informed in advance for their nature and their complexity. RALP is typically a longer procedure compared with open surgery. The complexity of the daVinci robotic system and its function, the setting up, the docking-undocking of the robotic arms, the mechanical malfunctions which rarely can take place, the replacement of instruments – graspers, scissors, optic lenses – during surgery, can partly explain the long duration of RALP. A systematic review of 37 comparative studies conducted by Ficarra showed that RALP is more time-consuming than RRP in the earlier phase of the learning curve. As both surgeon and operating team gain experience, there is a substantial decrease in operative times that approach and in some series surpass those for open surgical techniques [10]. A comparative study by Krambeck showed similar results - difference in median operative duration between RALP and RRP (236 vs 204 min), but by the last RALP cases between the two groups, there is no significant difference in the median operative duration (211 vs 228 min)[11]. Badani *et al*. [12] in a study reporting their experience with 2766 RALPs presented that the mean surgical time (calculated from the time of Veress needle placement –

beginning of the pneumoperitoneum - to skin closure) and the mean console time were 156 and 116 min, respectively. When they compared the first 200 cases (group 1) and the last 200 patients (group 2), they found that the mean surgical and console time from 160 and 121 min in group 1 respectively felt to 131 and 97 min in group 2. The robotic set-up and the docking also decreased from 45 min in group 1 to 8 min in group 2.

The level of expertise of the surgeon is very important concerning the duration of the RALP and the risk of complications. Except from the number of operation – operative volume - performed by a surgeon, the frequency that the operator uses the console – time interval between cases – is also very important. Long periods without operative practice can affect the skills of both open and robotic surgeons but the difference is much more obvious and can influence more the result of a minimally invasive operation [10,13].

Intraoperative Blood Loss – Blood Transfusion

Decreased intraoperative blood loss, is the hallmark advantage of RALP comparing with the open technique. Because most of the blood loss that occurs during radical prostatectomy is from venous sinuses, the tamponade effect from the pneumoperitoneum helps diminish ongoing blood loss during RALP. The antegrade also approach used during RALP entails earlier control of the prostatic pedicles and late division of the DVC as compared with RRP, in which the DVC is divided early and the arterial supply to the prostate managed late in the operation. These factors, as well as the excellent visualization, account for the minimal blood loss during RALP reported in most series. Kordan *et al*. [14] in a study comparing 414 RRPs and 830 RALPs reported 450ml and 100ml median blood loss respectively. The transfusion rate for the two groups was 3.4 for the RRP group and 0.8 for the RALP. Ficarra in his review presented transfusion rates from 9% to 29% for patients undergoing RRP and from 0 to 2.6% for RALP [10,15,16]. In a recent meta-analysis by Novara *et a*l. it is clearly showed statistically significant differences in terms of rates for blood loss and transfusion rates in favor of RALP [13]. In the RRP group the intraoperative blood loss ranged from 1100-350 ml and the transfusion rate between 35-10% whereas in the RALP group the blood loss was between 400-100 ml and the transfusion between 0.8-10% . Fracalanza also evaluated the tissue damage after RRP or RALP, and he demonstrated that the tissue damage was significantly lower after RALP. Plasma

levels of IL-6 and C-reactive protein (CRP) were significantly lower in those patients who had RALP at the end of the procedure, 12 h later, and 24 h later [17].

Hospital Stay

The duration of hospitalization is an important component of convalescence after surgery and often considered a measure of patient well-being. Over the past decade, hospital stay after radical prostatectomy has diminished remarkably regardless of the surgical approach. With RALP, a hospital stay of only 1-2 days has become routine in many centers and discharge on the first postoperative day may be more easily accomplished. Dourmec *et al*. compared the perioperative outcomes of 502 men undergoing RRP and 212 men undergoing RALP found that the hospital stay was significant shorter for RALP at 2.8 days compared with 5.5 days of RRP [18]. Ileus and inability to tolerate a regular diet are the most common factors limiting early discharge in the case of transperitoneal RALP. Pain control does not typically contribute to prolonged length of stay. The infraumbilical muscle-splitting incision of RRP produces lower pain scores than other abdominal incisions, and the pain score of RRP and RALP is almost identical although Tewari *et al*. and Ficarra reported a significant reduction in the pain score during postoperative day 1 in patients treated robotically [10,19].

Catheterization time

A water tight and more secure anastomosis can be performed with a daVinci robotic system because of the better visualization and access of the anastomotic field – bladder neck and urethra. The catheterization time according to the majority of studies and the most recent meta-analysis by Novarra[13] favors the RALP patient group. Tewari *et al*. showed a significant reduction in the mean catheterization time in patients undergoing RALP (7 days) compared to RRP (10 days)[19]. Also Dourmec *et al*. in his series had catheterization time for RALP patients 6.3 days versus for RRP men 7.9 days [18]. The usage during RALP of a continuous double stranded barbed suture (Quill suture) creates a tight, knotless, leakage free anastomosis, offers faster catheter removal and less postoperative complications – anastomotic strictures [21]. Webb *et al.* [22], specifically addressed the issue of bladder neck contracture and strictures after RALP and ORP, and in his study, of a single

surgeon's case series of 200 consecutive men undergoing prostatectomy (100 RRP and 100 RALP), bladder neck contractures were absent after RALP while 9% of men developed a contracture after RRP. Recently the Vattikuti Institute published the new, modified VIP (Vattikuti Institute Prostatectomy) technique which uses percutaneous suprapubic tube bladder drainage instead of a transurethral catheter. The advantages of this methodology are greater patient comfort with no increase in the urethral stricture rate [23,24].

Table. Data of studies comparing perioperative outcomes between RRP and RALP

Studies	Cases	Operative time (min)	Blood loss (ml)	Transfusion rate %	Catheterization (day)	In Hospital stay (day)
Ficarra (2009	105 RRP 103 RALPP	135 185	500 300	(9-29) (0-2.6)	6 5	7 6
Rocco (2009)	240 RRP 120RALP	160 215	800 200	-	7 6	6 3
Kordan (2010)	414 RRP 830 RALP	-	450 100	3.4 0.8	7 5	5 3
Dourmec (2010)	502 RRP 212RALP	148 192	300-600 250	2 1	7.9 6.3	5.5 2.8
Tewari (2010)	100 RRP 200 RALP	163 160	700 100	15 1	10 7	4 2

FUNCTIONAL OUTCOMES

The complications of radical prostatectomy with the greatest potential for an adverse effect on quality of life are urinary incontinence and erectile dysfunction. Surgical experience and refinements in surgical technique have reduced the frequency with which these problems are observed in most radical prostatectomy series. Whether robotic approaches offer an improved functional outcome is still a matter of debate, and comparison of published series is difficult because of differences in patient populations and methods of outcome assessment.

Urinary Incontinence

Postoperative urinary incontinence has a negative effect on the satisfaction and health-related quality of life of patients who undergo radical prostatectomy for prostate cancer. It is usually manifested as stress incontinence secondary to intrinsic sphincter deficiency. The exact physiologic mechanisms that contribute to urinary control after radical prostatectomy are not entirely understood and are likely multifactorial. Studies evaluating the potential predictors for urinary continence recovery showed that patient age, body mass index BMI(>30), comorbidity index, presence and severity of lower urinary tract symptoms (LUTS), preoperative erectile function, prostate volume – Vol>80 cm3, surgeon experience and surgical technique are undoubtedly the most important factors.

A common observation after radical prostatectomy, regardless of surgical approach, is that urinary incontinence improves substantially within the first 3 to 6 months after surgery and to some extent for another year [10]. A recent meta-analysis showed a 12 month urinary continence recovery rate ranging from 60- 93% for RRP patient group and 84-97% continence recovery rate for RALP patients respectively, according to the definition of continence – no pad or safety pad usage [25]. Tewari *et al*. reported a statistically significant reduction in the days needed to reach continence in patients who underwent RARP in comparison with those who received RRP (44 d vs 160 d) [19]. Kim *et al*. reported overlapping results between the two techniques, for the 12 month continence rate, but RALP patients presented better results earlier – 3 months postoperative [26]. Most recent studies by Ficarra *et al*.[10], Rocco *et al*.[27], and De Pierro *et al*. [28] showed that the absolute risk of urinary incontinence after 12 months was 11.8% after RRP and 7.2% after RALP. Therefore the risk reduction with a minimally

invasive technique is about 4.2%. This is a statistically significant advantage in favor of RARP in comparison with RRP urinary continence recovery, and such data presents for the first time since the beginning of the robotic era. The ability to accomplish a tension-free, watertight anastomosis under the superior and direct 3D visualization offered by the daVinci robotic system, the puboprostatic-sparing techniques, the bladder neck preservation, the selective DVC (Dorsal Vein Complex) division, nerve sparing techniques – intrafacial and extrafacial, and the posterior rhabdosphincter reconstruction – "Rocco stitch" - as well as the anterior restoration of the pelvic space are advocated as surgical aspects potentially able to reduce the risk of urinary incontinence after RALP.[25,29,30]

Erectile Function - Potency

Preservation of erectile function after radical prostatectomy depends on precise and meticulous separation of the cavernous nerves within the neurovascular bundles (NVBs) from the prostate gland. Walsh's description of the anatomic nerve sparing technique was based on the concept that the neurovascular bundles are situated posterolaterally and symmetrically to the prostate in the space among the levator fascia, prostatic fascia, and Denonvilliers' fascia. However, new anatomic studies especially in men with small prostates revealed that NVBs may have either an anterolateral position or rarely an asymmetric posterolateral position on one side while lateral on the other [31]. These new anatomic concepts supported the incision of the periprostatic fascia anteriorly and parallel to the NVBs to preserve cavernous nerves located at both the posterolateral and anterolateral surfaces of the prostate. Consequently, it was hypothesized that the tridimensional magnification, and the scaling of movements of the robotic technology could significantly simplify and improve the results of nerve-sparing procedures and offer better potency results for the patient.

Age, baseline potency status, comorbidities, extension of the nerve sparing procedure, surgical technique, surgical experience and postsurgical rehabilitation represent the most relevant predictors of potency recovery after radical prostatectomy [32]. Differences in the method of assessment, definition of potency (erection sufficient for intercourse), and patient selection complicate comparisons between RRP and RALP. In addition, the use of adjunctive therapies such as phospho-diesterase-5 inhibitors (PDE5) or vasoactive injections can substantially influence results.

Improvement in erectile function is a prolonged process that is ongoing for years after radical prostatectomy. There are no published data that allow definitive conclusions about the relative merits of RALP compared with open surgical approaches. A review of the literature by Dubbelman [33] showed a wide range of estimates after a follow-up of 12 months, with patients who received bilateral nerve-sparing for RRP showing potency rates ranging from 31% to 80%. The 12 month potency recovery after robot-assisted radical prostatectomy (RALP) according to the most recent meta-analysis by Ficarra *et al.* is between 55% and 81% [32], and according to Tewari patients who underwent RALP compared with those receiving RRP had a shorter time to reach erection after the operation (180 days versus 440 days), and the median time to intercourse was 340 days after RALP and 700 days after RRP. [37]

Oncologic Outcomes

The two most commonly reported oncological outcomes after radical prostatectomy are positive surgical margin (PSM) status and biochemical recurrence (BCR) rate. PSM status represents a surrogate marker for surgical quality in organ-confined disease and is a risk factor for subsequent BCF and systemic progression of disease. PSM status may be affected by a number of variables including tumor characteristics, nerve-sparing approach and surgeon experience. Proper surgical dissection should allow negative margins with pT2 tumors while also permitting complete excision and negative margins for some extracapsular pT3 lesions. Efforts to avoid urinary incontinence or erectile dysfunction by dissecting too closely to the prostatic apex or the posterolateral aspect of the prostate can compromise margins, regardless of the surgical approach. The most common site of a positive margin, whether the operation is performed via open or minimally invasive approaches, is the prostatic apex.

Comparison between high-volume centers with operations performed by experienced surgeons has shown no definitive advantage for one surgical approach over the other in achieving negative surgical margins**.** A recent meta-analysis by Novarra *et al*. showed only non–statistically significant differences in overall PSM rates following RRP and RARP (22% versus 20%). PSM rates in pT2 cancers were similar following RRP and RARP (12% versus 11%). The preoperative PSA level did not correlate with the PSM rate but patients who presented with pT3-T4 stage had 3.5 times the risk

of a PSM than patients with pT2 disease [34,35,36]. However, Wiklund *et al*. in his study reported a statistically significant difference. He described overall PSM rates 24.2% for RRP, and 16.2% for RALP; pT2 PSM rates 16.6% for RRP, and 10.7% for RALP [37].

Data on long-term cancer-specific survival following RARP are still lacking because of the limited time the procedure has been performed and the long natural history of clinically localized prostate cancer. By adopting 0.2 ng/ml as the definition of PSA recurrence (BCR), at a median follow-up duration of 60 month, Menon *et al*. found 3-, 5-, and 7-yr BCR rates as high as 90%, 87%, and 81%, respectively, with 95.5% cancer-specific survival [35]. Among preoperative variables, the authors found that PSA, biopsy Gleason score, and perineural invasion in the biopsy specimen, were independent predictors of BCR. The BCR-free survival rates were similar to those reported in RRP series, and all the comparative studies evaluating PSA recurrence failed to demonstrate any significant difference among RARP and RRP. Those data seem to suggest that rates of PSA recurrence (BCR) similar to those of RRP are also achievable with RARP, at least when performed by experienced surgeons.

Economic Considerations

In the era of minimally invasive approaches, the economic issues are important. The duration of surgery, the length of hospitalization and the equipment expenses contribute to the costs for RALP, which typically are higher than those for open approaches. Current purchase cost of a daVinci system is approximately $1.65 million with an average cost of $2400 for each multiple-use (10 lives) robotic instrument. For robotic instrumentation, this would translate to approximately $1200 per case for the use of five separate robotic instruments with an additional $325 per case for disposables (sterile robotic drapes and trocar seals). Lotan *et al*. found that RALP costs were approximately $1155 per case more than RRP if the initial purchase cost of the robot were excluded and $1725 per case if included. They calculated that the cost equivalence between RRP and RALP could be met if disposable equipment was eliminated by using reusable items and operative times for RALP were reduced to 3.4 hours. Also in a cost analysis they found that RALP would be less expensive than RRP in some practice settings in which RALP hospital stay was less than 1.5 days if case volumes increased to 14 cases per week. Robotic prostatectomy may be more economically viable in high-volume centers with multispecialty robotic use. [38]

DISCUSSION

Despite only intermediate term follow-up being available for RALP technique, current data demonstrate that RALP procedure achieve oncologic and functional outcomes similar to the well established technique of open radical prostatectomy. Better results are achieved with RALP in terms of blood loss, convalescence and cosmetics – perioperative outcome - compared to RRP. The initial purchase and maintenance fees for the robotic platform are still expensive. With an expected reduce in the cost minimally invasive prostatectomy techniques have the potential to be the gold standard in the treatment of localized prostate cancer worldwide.

It is likely that the most critical issue is the selection of the best surgeon - the most experienced – rather than surgical approach. The competition that followed the diffusion of minimally invasive surgery pushed open surgeons to improve their surgical techniques. There is no reason that a surgeon obtaining excellent functional and oncologic results with RRP, to change to a different approach. However, long term data, follow-up, and adequately designed comparative studies, are needed to assess the advantages and disadvantages of the two techniques.

ABSTRACT

Despite the wide spread in recent years of minimally invasive techniques in urology, few comparative studies between open and robotic-assisted laparoscopic radical prostatectomy are available. A review of the literature was performed, to assess the available comparative studies of the two techniques.

With regard to the outcome perioperative robotic assisted radical prostatectomy was more time consuming compared to the open radical prostatectomy, especially in the early stages of the learning curve, but blood loss, transfusion rates, catheterisation time, and duration of hospitalisation, all favoured RALP. Regarding oncologic and functional outcomes, neither technique is superior to the other. Further prospective, comparative studies are needed.

ΠΕΡΙΛΗΨΗ

Παρά την μεγάλη διάδοση κατά τα τελευταία χρόνια των ελάχιστα επεμβατικών τεχνικών στην ουρολογία, λίγες μόνο συγκριτικές μελέτες υπάρχουν μεταξύ ανοικτής και ρομποτικά υποβοηθούμενης λαπαροσκοπικής ριζικής προστατεκτομής. Έγινε μία ανασκόπηση της βιβλιογραφίας, με σκοπό την εκτίμηση των διαθέσιμων συγκριτικών μελετών των δύο τεχνικών.

Όσον αφορά την περιεγχειρητική έκβαση, η ρομποτικά υποβοηθούμενη ριζική προστατεκτομή, ήταν περισσότερο χρονοβόρα σε σχέση με την ανοικτή ριζική προστατεκτομή - ειδικά στα πρώτα στάδια εκμάθησης - αλλά η απώλεια αίματος, τα ποσοστά μετάγγισης, ο χρόνος καθετηριασμού και νοσηλείας ήταν μεγαλύτερα στην ανοικτή ριζική προστατεκτομή. Στα ογκολογικά και λειτουργικά αποτελέσματα, καμία τεχνική δεν υπερτερεί έναντι της άλλης. Περαιτέρω προοπτικές, συγκριτικές μελέτες απαιτούνται.

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